

CLAIMS

1. A honeycomb structure comprising: a cell structural part including a plurality of cells partitioned by partition walls in a honeycomb shape to form flow paths allowing a fluid to flow therein; and an outer wall disposed on an outer peripheral surface of the cell structural part,

characterized in that an outermost peripheral cell positioned in an outermost periphery of the cell structural part and a predetermined number of cells (outer peripheral cells) positioned in an inner direction from the outermost peripheral cell among the cells are sealed by an inner peripheral surface of the outer wall in an end portion and/or an intermediate portion of at least one of the outermost peripheral cell and the outer peripheral cell in a central axis direction to form shielded cells which prevent the fluid from flowing.

20 2. The honeycomb structure according to claim 1, wherein a thickness of the shielded cell in a diametric direction of the honeycomb structure is 10% or less of an outer diameter of the honeycomb structure.

25 3. The honeycomb structure according to claim 1 or 2, wherein the cell structural part and the outer wall are constituted of ceramic materials.

4. The honeycomb structure according to claim 1 or 2, wherein the cell structural part and the outer wall are constituted of metal materials.

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5. The honeycomb structure according to any one of claims 1 to 3, wherein the cell structural part contains a material having an adsorption function or a catalyst function.

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6. The honeycomb structure according to any one of claims 1 to 5, wherein the outer wall is constituted of a heat-resistant material.

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7. The honeycomb structure according to any one of claims 1 to 6, for use as a filter, wherein opposite end portions of the cells in the central axis direction are alternately plugged.

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8. A catalyst body comprising the honeycomb structure according to any one of claims 1 to 7 which supports a catalyst inside the cells and/or inside the partition walls.

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9. The catalyst body according to claim 8, wherein the catalyst has a function of purifying an automobile exhaust gas.

10. A method of manufacturing a honeycomb structure, comprising the steps of: preparing a cylindrical cell structural part including a plurality of cells partitioned by partition walls in a honeycomb shape to form flow paths allowing a fluid to flow therein by extrusion; and drying and firing the cell structural part, characterized in that shrinkage factors of opposite end portions of the cell structural part in a central axis direction are set to be different from each other to thereby form the cell structural part into a truncated cone shape, an outer peripheral surface of the truncated cone shape of the cell structural part is worked into a cylindrical shape, and an outer wall is disposed on the outer peripheral surface worked into the cylindrical shape.

11. A method of manufacturing a honeycomb structure, characterized by comprising the steps of: preparing a cylindrical cell structural part including a plurality of cells partitioned by partition walls in a honeycomb shape to form flow paths allowing a fluid to flow therein by extrusion; drying and firing the cell structural part; working an outer peripheral surface of the cell structural part into a truncated cone shape; and disposing an outer wall on the outer peripheral surface worked into the truncated cone shape.

12. A method of manufacturing a honeycomb structure, characterized by comprising the steps of: preparing a cell structural part including a plurality of cells partitioned by partition walls in a honeycomb shape
5 to form flow paths allowing a fluid to flow therein by extrusion; drying and firing the cell structural part; working an outer peripheral surface of the cell structural part into a cylindrical shape inclined with respect to a central axis direction of the cell structural part; and
10 disposing an outer wall on the outer peripheral surface worked into the inclined cylindrical shape.

13. A method of manufacturing a honeycomb structure, characterized by comprising the steps of: preparing a cell structural part including a plurality of cells partitioned by partition walls in a honeycomb shape
15 to form flow paths allowing a fluid to flow therein by extrusion; drying and firing the cell structural part; working an outer peripheral surface of the cell structural part in such a manner as to form concave/convex portions;
20 and disposing an outer wall on the outer peripheral surface worked in such a manner as to form the concave/convex portions.

25 14. A method of manufacturing a honeycomb structure, characterized by comprising the steps of: preparing a cell structural part including a plurality of

cells partitioned by partition walls in a honeycomb shape
to form flow paths allowing a fluid to flow therein and
having a curved axis by extrusion; drying and firing the
cell structural part; working an outer peripheral surface
5 of the cell structural part into a cylindrical shape; and
disposing an outer wall on the outer peripheral surface
worked into the cylindrical shape.